UAVS OSD 912-816 PILOT PROGRAM Candidate

Business Process Improvement (BPI)/R-TOC Initiatives

Mr. Ron Smith
Chief, System Support Division
Unmanned Aerial Vehicle Systems (UAVS)

Shadow 200 ADM Directive

"UAVS-Protecting the Point"

01 Oct 2002

MEMORADUM FOR PROGRAM EXECUTIVE OFFICER, AVIATION

SUBJECT: Acquisition Decision Memorandum for the Tactical Unmanned Aerial Vehicle (TUAV) System

. . . . Finally, I require the PM UAVS to present to me an acquisition approach for Future Combat Systems and interoperability initiatives no later than January 15, 2003. This approach must address development of a Heavy Fuel Engine, reduction of Target Location Error, development and implementation of the Tactical Common Data Link, and development of payload "plug-n-play" (synchronization). ***I also require the PM to track and report semi-annually the system's logist***

Only DOD UAV System to Receive a Full Rate Production Decision !

Claude M. Bolton, Jr.
Army Acquisition Executive

PMO UAVS Initiatives for the Reduction of Total Ownership Life-Cycle Cost

"UAVS-Protecting the Point"

Implementation of Automated Identification Technology (AIT)

PMO UAVS has commenced the implementation of AIT with the direct support of the Army Business Process Improvement Office. Just-in-Time (JIT) supply chain management, enabled by AIT, will result in reduced Customer Wait Time (CWT) and allow for the management of spares assets at an Army rather than unit level. This ability to actively, and in near real-time, track and manage repaired/evacuated spares thru the logistic chain will provide the opportunity to redirect spares to needing units and thereby have direct impact on unit readiness in support of OPTEMPO demands. The reduction of data entry errors, the collection of real-time data, and ability to transition to an automated Maintenance Management System enabled by AIT will result in a significant reduction of Life-Cycle O&S cost.

Implementation of Performance Based Logistics (PBL)

The UAVS Operational Requirements Document (ORD) establishes performance parameters that address Operational Availability (Ao) and Mean Time Between System Abort (MTBSA). These parameters are functions of metrics that include Mean Time Between Failure (MTBF), Mean Time To Repair (MTTR), and Customer Wait Time (CWT). The UAV Supportability Strategy implements Performance Based Logistics (PBL) to achieve these metrics and additionally tasks the Product Support Integrator to achieve unit Operational Readiness Requirements. Initial Economic Analysis indicates that PBL may reduce overall OPTEMPO Life-Cycle Cost by as much as 30%. We will validate this projected estimate and update the resulting savings.

Implementation of Army UAVS One System Ground Control Station

The Army UAVS One System initiative requires a relatively small investment. The effort modifies the Shadow 200 Ground Control Station so that it can control and disseminate information for either the Shadow 200 or the ER/MP (interim and future) air vehicle. UAVS PMO estimates that the life cycle cost savings resulting from this initiative is significant in that it not only makes the systems interoperable but reduces the footprint and cost of the supportability infrastructure.

BPI/R-TOC Initiatives

"UAVS-Protecting the Point"

BPI/R-TOC Initiatives:

- Implement Maintenance Automated Information Technologies (AIT)
- Implement Performance Based Logistics (PBL)
- Implement an Automated Information System (AIS) that interfaces with Global Combat Support System-Army (GCSS-A)
- Develop the Army One System Common Ground Control Station

Performance-Based measurements will:

- Track the success of each initiative
- Form the basis for high-level tracking and reporting
- Gauge benefits of R-TOC Pilot Program initiatives and the effect each has on total ownership cost

UAVS Performance Assessment System UPAS – The Vision

"UAVS-Protecting the Point"

Maintenance task and Forms set up on Reader

AIT enables Maintenance Forms on Readers

Soldier performs FLO, PMCS, and Maintenance

Reader downloads data to MSD or directly to ULLS

MSD

ULLS

Ability to track historical data on all UAVS components

Maintainer can access SME via website if needed

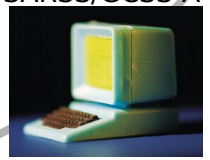
Data Output

Data Analysis and Mining Data

Main Data Repository Server

Data is transferred via the internet to

SARSS/GCSS-A



- Maint. Workload Tracking
- Smart Cost $ Tracking
- Off-Post Vendor $ Tracking
- SRU $ Repair Tracking
- Recap Metric Tracking
- Depot aircraft Tracking

Website includes:
- SME
- Chat Room
- Knowledge Links
- FAQs

PBL Metric Assessment

Failure Trends
Maintenance Practices
Component Redesign
MOD/ECP success rates
TM procedures

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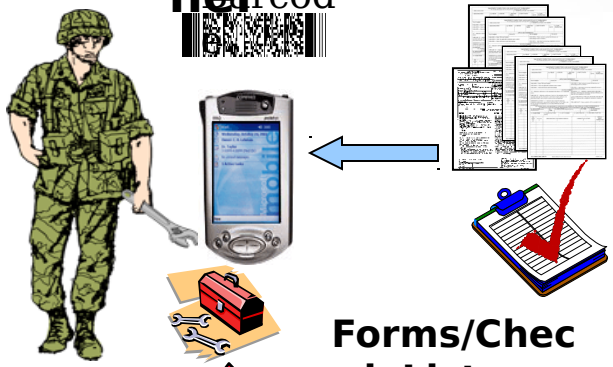
AIT Enabled DATA Flow

"UAVS-Protecting the Point"

- Transparent to Soldier
- Reduces Paper
- Increases Efficiency

Operator/Maintainer

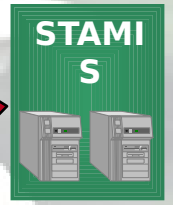
Barcode



Forms/Check List on Handheld

SAMS / SARSS

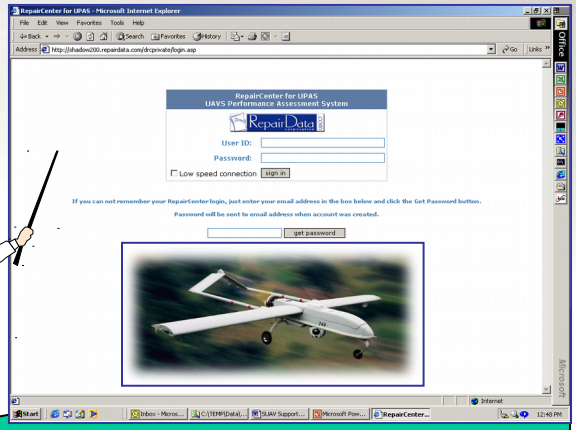
SARSS Gateway

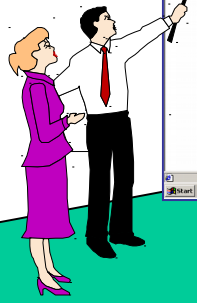


UPAS

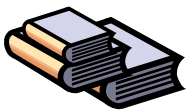
ULLS Terminal

MSD (the MSD maybe the ULLS Terminal in some cases)



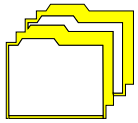


PBL Metric Assessment



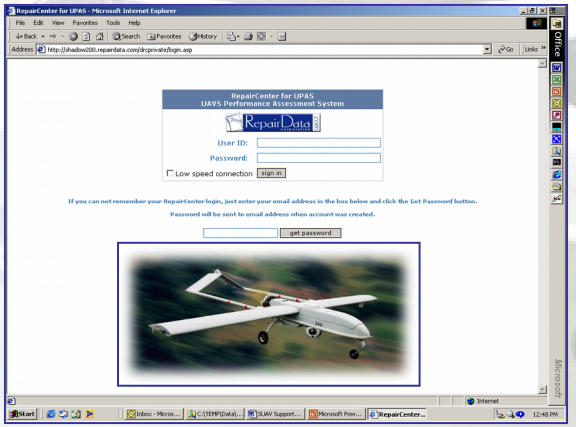
Tech Pubs/ETMS/IETM

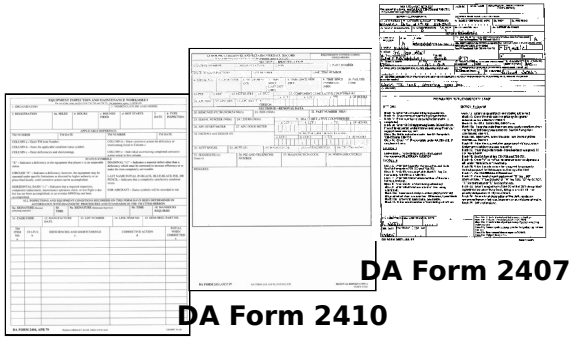
Check Lists



Equipment Records

Challenge is to Integrate a Technology Set that remains user friendly


RepairCenter for UPAS - Microsoft Internet Explorer
RepairCenter for UPAS
UAVS Performance Assessment System
RepairData
User ID:
Password:
Low speed connection
sign in
If you can not remember your RepairCenter login, just enter your email address in the box below and click the Get Password button.
Password will be sent to email address when account was created.
get password



DA Form 2404

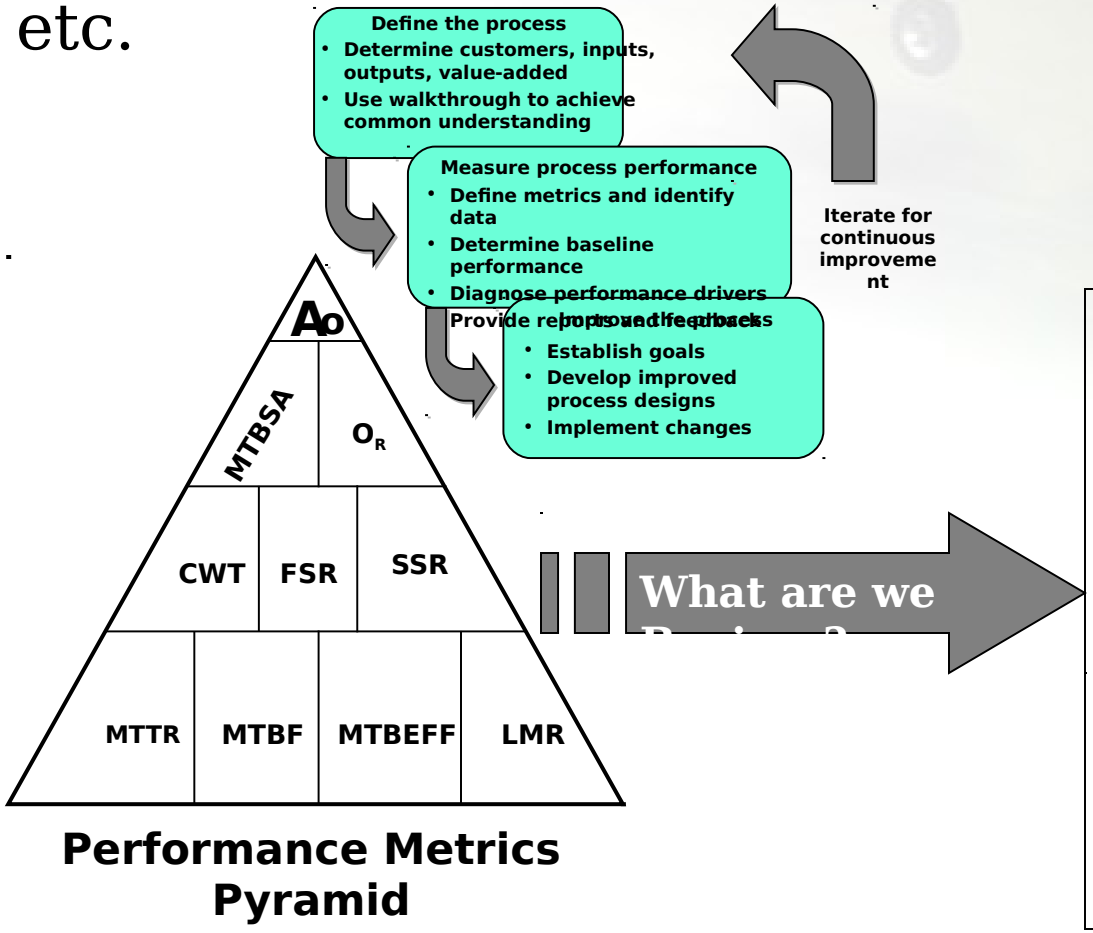
DA Form 2410

DA Form 2407

UAVS Performance Based Logistics (PBL)

"UAVS-Protecting the Point"

A Product Support Contract that procures Performance via measurable metrics vs the traditional procurement of spares, repair of spares, etc.



Performance Metrics Pyramid

RELIABILITY GROWTH WITH AN EXPECTED REDUCTION IN TOTAL OWNERSHIP COST

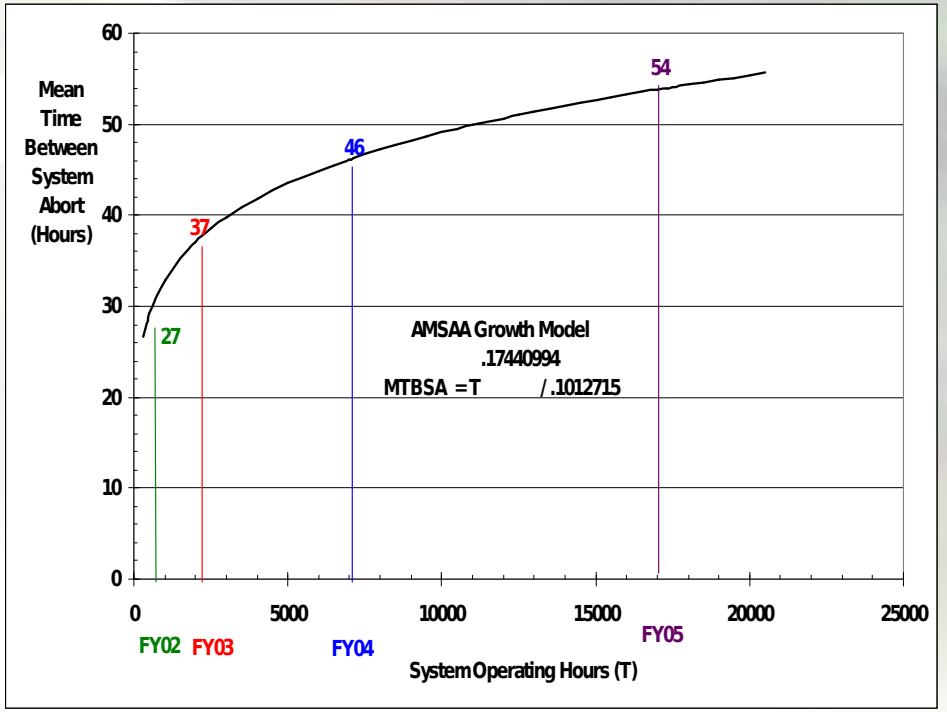
90% or Higher	***System Status Readiness (SSR)***
90% or Higher Time	***Customer Wait (CWT)***
12/1 or Higher Ratio	***Logistics Maintenance (LMR)***
Satisfactory Service Representative Performance (FSR)	***Field***
80% or better Training Equipment Availability Ratio	

UAVS Performance Based Reliability Growth

"UAVS-Protecting the Point"

Reliability/Maintainability Drivers

Air Vehicle	Propellers – frequent replacement Engines Modems O-Rings - leaking Tailhooks - bending
Ground Data Terminal (GDT)	Data Interface Box (modems) Cables
Fuel System/Fuel Leaks	Air Vehicle Bowser
Magneto Calibration	CLS level task, not Unit



Post IOT&E PBL Reliability Growth Initiatives

- Engine Quality Inspection Improvements
- Axle Upgrades
- Bowser Improvements
- Improved Magnetic Calibration Procedures

Basis for Growth Projection

- The Growth Curve starts at a MTBSA of 27 Hours which was achieved during IOT&E
- Growth is the cumulative effect of projected reliability improvements and Platoon experience (Note: OPTEMPO during Fall of 2001, not included in this growth analysis, improved MTBSA from 20 hours to 27 Hours)
- Timeline for projected Hours to achieve Objective MTBSA of 54 Hours based upon predicted flight hours executed against the Fielding Schedule

Performance Based Product Support Contract Strategy

"UAVS-Protecting the Point"

April 2003

Product Support I - Cost Plus with incentives

- The Cost Plus phase provides the opportunity to evaluate true cost and to determine the right incentives to support the Fixed Price phase.
- The key is the data collection and analysis.

Limited PBL Implementation during Phase I

Define the process
- Determine customers, inputs, outputs, value-added
- Use walkthrough to achieve common understanding

Measure process performance
- Define metrics and identify data
- Determine baseline performance
- Diagnose performance drivers

Provide reports and feedback
- Establish goals
- Develop improved process designs
- Implement changes

Iterate for continuous improvement

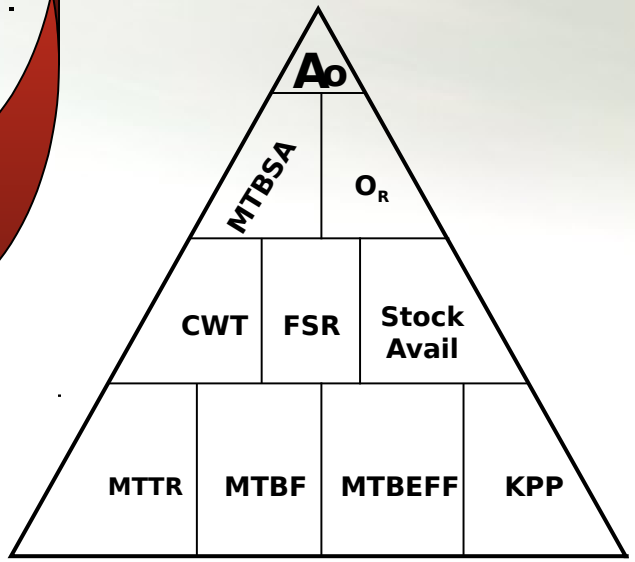
AN EVOLUTIONARY PROCESS

April 2005(?)

Product Support II - Fixed Price, Performance Based, Award Term

- Better System Operational Readiness/Availability
- Increased MTBSA
- Reduced logistics footprint
- Higher overall system readiness levels

Full PBL Implementation during Phase II



Logistics Performance Pyramid

tegrated Approach to Life-Cycle Sustainment Performance Based Logistics enabled by A

"UAVS-Protecting the Point"

AIT enables Performance Based Logistics Metric Tracking

Capture empirical data

AIDC

Empirical data compared to OEM performance metrics

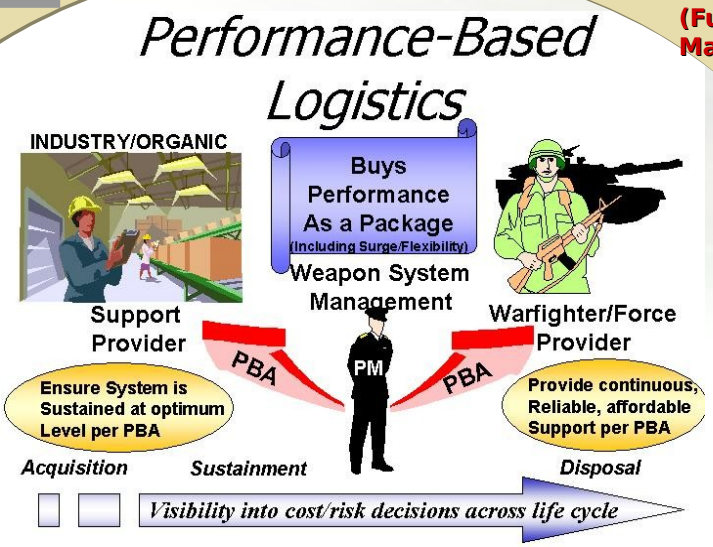
AIS

(Fully Automated Maintenance Management System)

Findings reported to PM
- **Performance metrics are validated**
- **Accurate management decisions**

Mark Shadow 200 Systems

AIT



ORD

UAVS Shadow 200 Metrics

- **Operational Availability**
- **MTBSA**
- **MTTR**

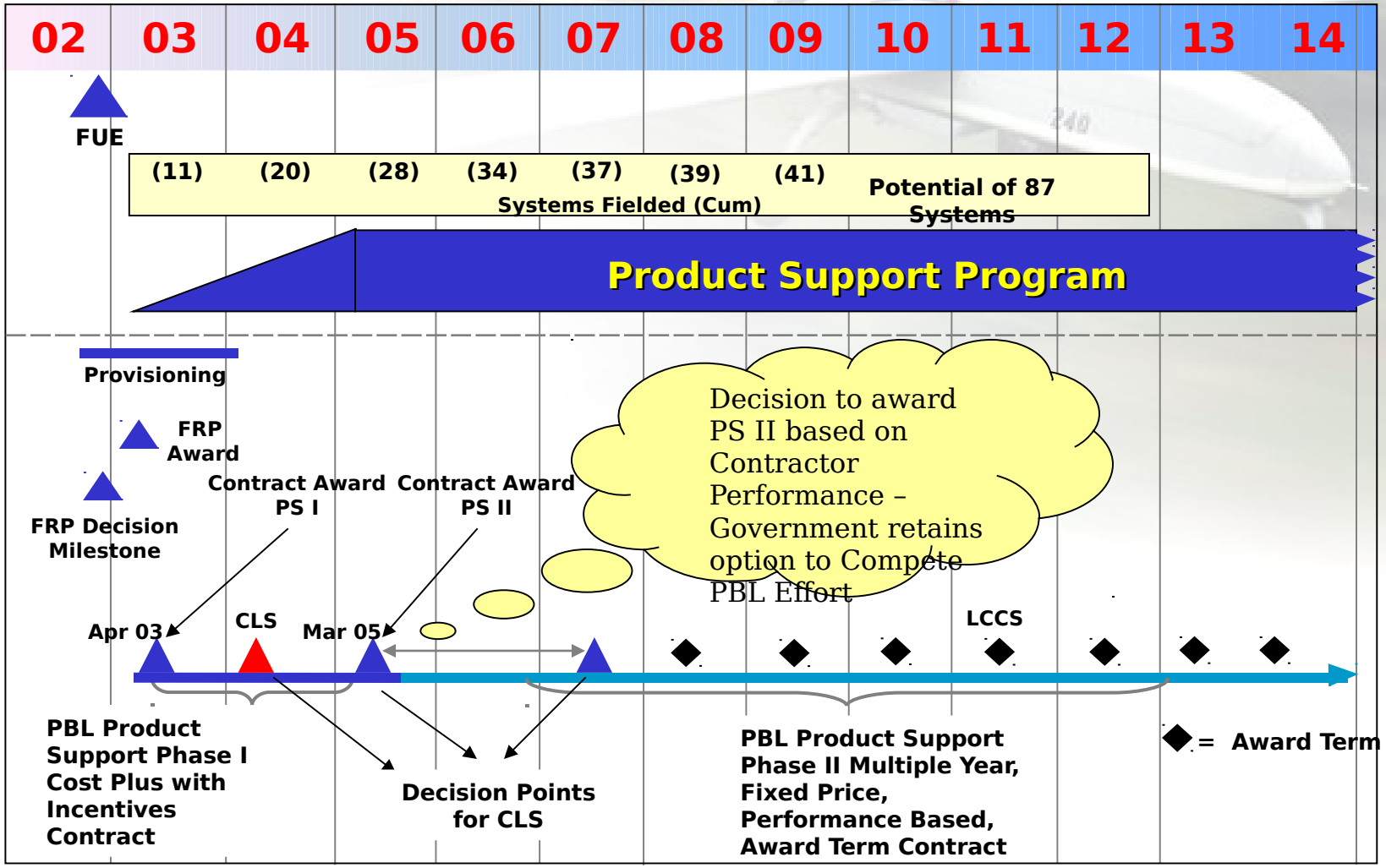
→

- **SSR**
- **CWT**
- **LMR**
- **FSR**

PBL

Applicable to Shadow 200 from Interim to FCS

PBL/Sustainment Actions Timeline



Army One System Common Ground Control Station

"UAVS-Protecting the Point"

- Modification of TUAV GCS enables control of both TUAV and Hunter interim Extended Range/Multipurpose (ER/MP) UAVs and dissemination of data using one common GCS system.
- Needed at Division and Corps prior to final ER/MP UAV system due to current contingency OPTEMPO for RSTA, Battle Damage, and Battle Management capabilities.
- Replaces obsolete systems requiring extensive redesign
- Economic Analysis supports reduction in

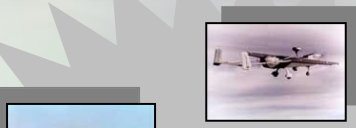
One Army UAV System

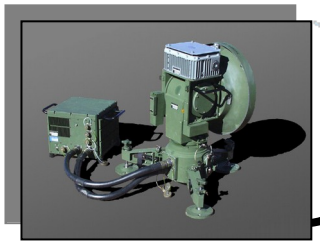
The system is much more than an airframe

Ground Data Terminal (GDT)

Launcher

Air Vehicles





Ground Support Equipment (GSE)
Ground Control Station

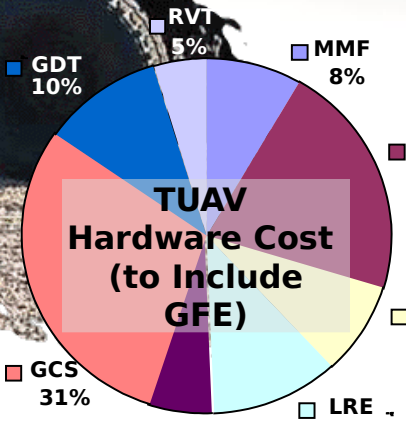
Tactical Automated Landing System (TALS)

Portable Ground Support Equipment – Ground Control Station & Data Terminal

Payloads

Personnel

Maintenance Support-Multifunctional (MSM) AVUM Contact Teams



Army One System
Cost Reduction Opportunities

"UAVS-Protecting the Point"

- Common Training for the Army One System GCS will reduce cost.
  - **Common LESSON MATERIAL**
  - **Common INSTRUCTOR TRAINING**
  - **Common 52D/96U/33W IN FIELD**
  - **A Common SIMULATOR**
  - **Common FIELD SERVICE REPRESENTATIVE TRAINING**
  - **Common GCS/IETMs**
- Life Cycle Sustainment for the Army One System GCS will reduce cost.
  - **Common AVUM/AVIM Tasks**
  - **Common MMF (FSR's)**
  - **Common FORWARD DEPOT SUPPORT ACTIVITIES**
  - **Common REGIONAL SUPPORT ACTIVITIES**
    - **Korea – Germany - CONUS**
  - **Common PSI DEPOT with Organic Depot Partnering**

UAVS OSD 912-816 PILOT PROGRAM - Candidate

- Our Requirements are Defined
- Our Baseline estimated cost has been established
- We have identified our Cost Savings Initiatives
- We are validating with Economic Analysis, Business Case Analysis, and Cost Trade Studies
- We will verify our expected Return on Investment/Cost Savings